Integration of Globally Harmonized System (GHS) into the Navy Hazard Communication Program

UNCLASSIFIED

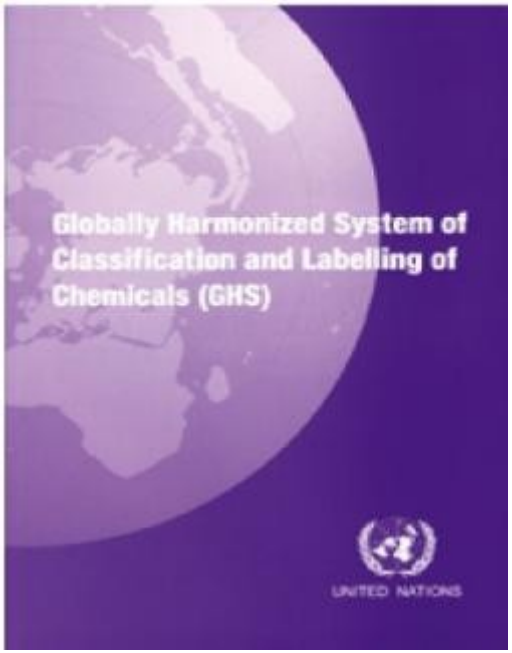
Overview

- Introduction/Background
- Three Categories of Hazards
- Safety Data Sheets (SDS)
- Labeling

What is HAZCOM?

- HAZCOM is short for Hazard Communication Standard (HCS)
- In order to ensure chemical safety in the workplace, information about the identities and hazards of chemicals must be available and understandable to workers. OSHA's HCS requires the development and dissemination of such information:
  - Chemical manufacturers/importers are required to evaluate the hazards of the chemicals they produce or import, and prepare labels and material safety data sheets (MSDS) or safety data sheets (SDS) to convey the hazard information to their downstream customers;
  - All employers (including the military) with hazardous chemicals in their workplaces must have labels and MSDS/SDS for exposed workers, and train them to handle the chemicals.
  - Workers shall receive this training upon initial assignment, before working with the chemicals, and whenever a new chemical hazard is introduced into their work area.

Hazard Communication and Globally Harmonized System (GHS)



- The GHS is an acronym for the *Globally Harmonized System of Classification and Labeling of Chemicals*.
- The elements in the GHS meet the basic requirement of any hazard communication system, which is to decide if the chemical product produced and/or supplied is hazardous and to prepare a label and/or Safety Data Sheet (SDS) as appropriate.
- The US will incorporate GHS through OSHA's Hazard Communication standard, 29 CFR 1910.1200.

Phase-in Period for GHS into Hazard Communication Standard

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and SDS format.	Employers
June 1, 2015 December 1, 2015	Comply with all modified provisions of this final rule, except: Distributors may ship products labeled by manufacturers under the old system until December 1, 2015.	Chemical manufacturers, importers, distributors and employers
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
	Comply with either 29 CFR	All chemical

Phase-in Period for GHS into Hazard Communication Standard

- By **December 1, 2013,** all Sailors, Navy civilians, and embedded contractors must be trained on the new label elements and SDS format.
- By **June 1, 2016,** all Navy organizations will be required to have integrated GHS into their existing Hazard Communication program and must have:
  - Completed transition to new workplace labeling,
  - Made sure SDSs are available on every chemical and have replaced all existing MSDS sheets, and
  - Have provided additional employee training for newly identified physical or health hazards.

1910.1200 Hazard Communication Standard for General Industry (Before GHS)

Requires an employer to:

1. Have a written hazard communication prog[illegible]

2. Have each hazardous chemical in the workpl[illegible] appropriately labeled.

3. Have a Material Safety Data Sheet (MSDS) for ea[illegible] hazardous chemical in the workplace.

4. Train his/her employees about the hazards associated with and precautionary measures required for each hazardous chemical in the workplace. Training is required initially
and anytime a new hazardous chemical is [illegible]ced into the workplace.

How does GHS change Hazard Communication at my installation?

1. “Hazard Classification” rather than “hazard determination”
2. “Safety data sheet” (rather than “material safety data sheet”) uses a 16-section format
3. Labels are more defined with specific requirements.

NOTE:

Because the US Navy adopted OSHA standards (see OPNAVINST 5100.23 series), it is required to meet the implementation/integration dates.

The Scope of the GHS

- Covers all hazardous chemical substances, dilute solutions, and mixtures.
- Pharmaceuticals, food additives, cosmetics and pesticide residues in food will not be covered at the point of consumer/end user, but will be covered where workers may be exposed (such as the manufacturing of food and pharmaceuticals), and in transport.

What are GHS Hazards?

The categories of hazards are:

- Physical
- Health
- Environmental (non-mandatory)

NOTE:

Hazards not Otherwise Classified (HNOC) by GHS are required to be included on SDS (section 2) and will be addressed in employee training.

GHS Physical Hazards

Physical Hazards

- Explosives
- Flammable Gases
- Flammable Aerosols
- Oxidizing Gases
- Gases Under Pressure
- Flammable Liquids
- Flammable Solids
- Self-Reactive Substances
- Pyrophoric Liquids

Continued

GHS Physical Hazards

Continued

Physical Hazards

- Pyrophoric Solids
- Self-Heating Substances
- Substances which, in contact with water, emit flammable gases
- Oxidizing Liquids
- Oxidizing Solids
- Organic Peroxides
- Corrosive to Metals

GHS Health Hazards

Health Hazards

- Acute Toxicity
- Skin Corrosion/Irritation
- Serious Eye Damage/Eye Irritation
- Respiratory or Skin Sensitization
- Germ Cell Mutagenicity
- Carcinogenicity

Continued

GHS Health Hazards

Continued

Health Hazards

- Reproductive Toxicology
- Target Organ Systemic Toxicity – Single Exposure
- Target Organ Systemic Toxicity – Repeated Exposure
- Aspiration Toxicity

GHS Environmental Hazards

Environmental Hazards

New

Hazardous to the Aquatic Environment

- Acute aquatic toxicity
- Chronic aquatic toxicity
  - Bioaccumulation potential
  - Rapid degradability

Role of the SDS in the GHS

- The SDS* provides comprehensive information about a chemical substance or mixture.
- Primary Use: The Workplace
- Employers and workers use the SDS as a source of information about hazards and to obtain advice on safety precautions.
- The SDS format will make finding hazard and chemical information easier.

***SDS—Formerly known as Material Safety Data Sheets (MSDS)**

SDS Format: 16 headings

SDS* is now in a standardized format:

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure control/personal protection

*SDS—Formerly known as Material Safety Data Sheets (MSDS)

SDS Format: 16 headings

Continued

9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information*
13. Disposal considerations*
14. Transport information*
15. Regulatory information
16. Other information

*Non-mandatory

SDS Format Example

Appendix B-2
MSDS for Chemical Stuff

GHS SAFETY DATA SHEET

1. Identification

Product Name: **Chemical Stuff**
Synonyms: Methyltoxy Solution
CAS Number: 000-00-0
Product Use: Organic Synthesis
Manufacturer/Supplier: My Company
Address: My Street, Mytown, TX 00000

General Information: 713-000-0000
Transportation Emergency Number: **CHEMTREC: 800-424-9300**

2. Hazards Identification

GHS Classification:

Health	Environmental	Physical
Acute Toxicity – Category 2 (inhalation), Category 3 (oral/dermal) Eye Corrosion - Category 1 Skin Corrosion – Category 1 Skin Sensitization – Category 1 Mutagenicity – Category 2 Carcinogenicity – Category 1B Reproductive/Developmental – Category 2 Target Organ Toxicity (Repeated) – Category 2	Aquatic Toxicity – Acute 2	Flammable Liquid – Category 2

GHS Label:

Symbols: flame, skull and crossbones, corrosion, health hazard

Hazard Statements	Precautionary Statements
DANGER! Highly Flammable Liquid and Vapor. Fatal if inhaled. Causes severe skin burns and eye damage. May cause allergic skin reaction. Toxic if swallowed and in contact with skin May cause cancer. Suspected of damaging the unborn child. Suspected of causing genetic defects. May cause damage to cardiovascular, respiratory, nervous, and gastrointestinal systems and liver and blood through prolonged or repeated exposure. Toxic to aquatic life.	Do not eat, drink or use tobacco when using this product. Do not breathe mist/vapors. Keep container tightly closed. Keep away from heat/sparks/open flame. – No smoking. Wear respiratory protection, protective gloves and eye/face protection. Use only in a well-ventilated area. Take precautionary measures against static discharge. Use only non-sparking tools. Store container tightly closed in cool/well-ventilated place. Wash thoroughly after handling.

3. Composition / Information on Ingredients

Component	CAS Number	Weight %
Methyltoxy	000-00-0	80

(See Section 8 for Exposure Limits)

Labeling

Is there a specific GHS label format / layout?

- The actual label format or layout is not specified in the GHS.

- However, there are required label elements.

Label Elements

Product identifier

Supplier identifier

Chemical identity

Hazard pictograms*

Signal words*

Hazard statements*

Precautionary information

*These three elements, on all hazard warnings, are required to be located together on the label

Labeling

The standardized label elements included in the GHS are:

- Signal Words
- Hazard Statements
- Symbols (hazard pictograms)

Signal Words

"Danger" or "Warning"

Used to emphasize hazards and indicate relative level of severity of the hazard assigned to a GHS hazard class and category

Hazard Statements

- Include appropriate statement for each GHS hazard on labels for products possessing more than one hazard.

- Examples of required hazard statements:

  “Keep away from fire, sparks and heated surfaces”

  “Do not use in areas without adequate ventilation”

  “Use CO2, dry chemical, or foam” (for fighting fires)

  “Wear safety goggles and gloves”

Pictograms

Have been standardized to convey health, physical and environmental hazard information, assigned to a GHS hazard class and category

Pictograms

Pictograms are required in the revised Hazard Communication Standard. The nine pictograms above are standardized.

Exclamation Mark

- Irritant (skin and eye)
- Skin Sensitizer
- Acute Toxicity (harmful)
- Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer (Non-Mandatory)

Health Hazard

- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity

Flame

- Flammables
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Self-Reactives
- Organic Peroxides

Gas Cylinder

- Gases under Pressure

Corrosion

- Skin Corrosion/ burns
- Eye Damage
- Corrosive to Metals

Exploding Bomb

- Explosives
- Self-Reactives
- Organic Peroxides

Flame over Circle

- Oxidizers

Skull and Crossbones

- Acute Toxicity (fatal or toxic)

Environment (Non-Mandatory)

- Aquatic Toxicity

CHEMICAL X

DANGER

HAZARD STATEMENTS:
Fatal If swallowed.
Causes severe skin burns and eye damage.

PRECAUTIONARY STATEMENTS:

- Wear protective gloves.
- Wear face protection.
- Do not eat drink or smoke when using this product.
- Wash hands thoroughly after use.
- Store in a sealed container.
- **IF ON SKIN:** Rinse immediately with with cool water.
- **IF IN EYES:** Rinse thoroughly with water and seek medical attention.
- **IF SWALLOWED:** Do not induce vomitting. Seek medical attention.

Dispose of contents/container in accordance with local regulations.

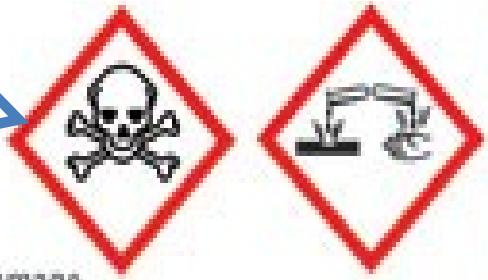
Chemical X Manufacturing, 1234 Over There St., (123) 456-7890

See the S.D.S for more information.

Precautionary Statements and Pictograms: Measures to minimize or prevent adverse effects.

CHEMICAL X

DANGER



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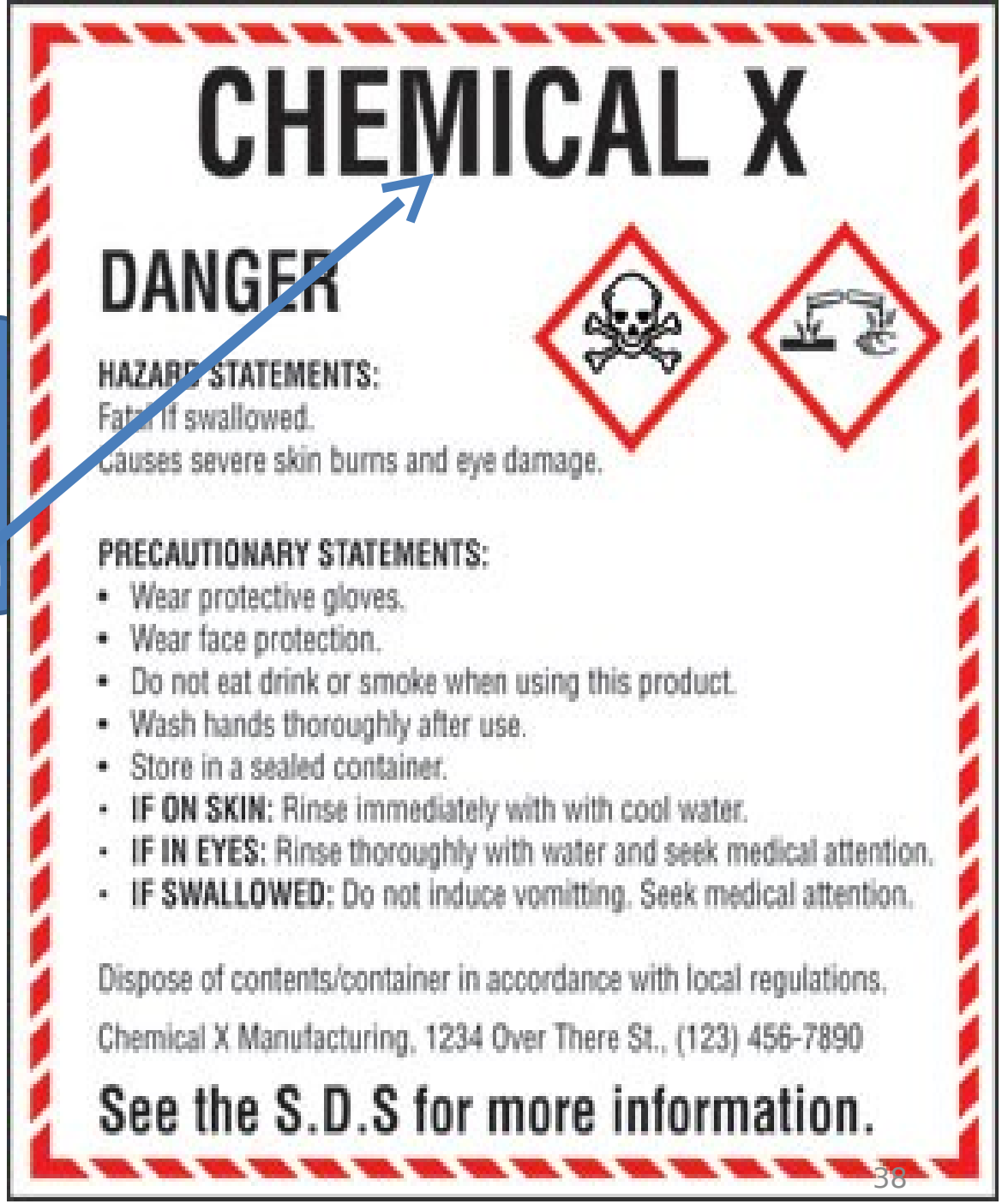
(ingredient disclosure): Name or number used for a hazardous product on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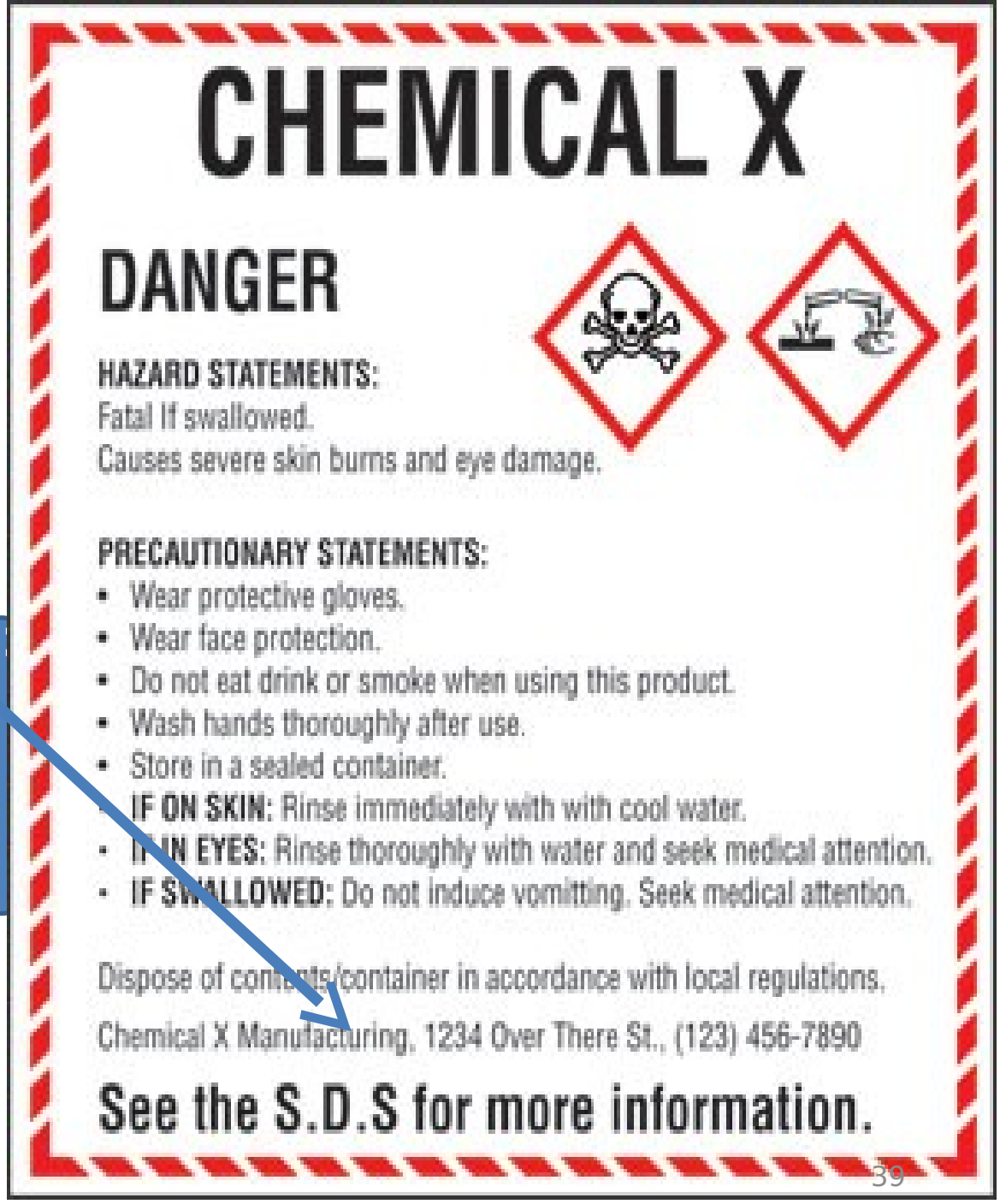
Supplier identification: The name, address and telephone number should be provided on the label.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Supplemental information: non-harmonized information

New Hazard Information

- Manufacturers, importers, distributors and employers who become newly aware of significant information regarding chemical hazards shall:
  - Revise the labels for the chemical within three (3) months.
  - Revise the SDS for the chemical within three (3) months.

Summary

During this block of instruction we have covered:

- Introduction/Background
- Hazards
- Safety Data Sheets (SDS)
- Labeling

Closing Comments

OSHA has revised the Hazard Communication Standard to include GHS.

As is in the current system, workers must be trained on the chemical hazards they may encounter ***before*** they are exposed to, use and/or work with the hazardous chemical(s). There is no grace period for this hazard communication training.

Prior to December 1, 2013, Navy Sailors, civilians and embedded contractors must be trained on the new label elements and safety data sheet (SDS) format.

Way Ahead

- Update your organization’s Hazard Communication Program and training to reflect the Globally Harmonized System.
- Until Dec 1, 2015, there will be a transition period where every chemical we receive can have either the current hazardous chemical label and MSDS or the new GHS label and SDS.
- Updates to Navy instructions and guidance on alternative workplace labeling to meet GHS compliance is underway.
- By June 2016 all Navy organizations will be in full compliance.

Information Sources

- OSHA web page on Hazard Communication:
  http://www.osha.gov/dsg/hazcom/index.html

- OSHA FACT SHEET :
  http://www.osha.gov/dsg/hazcom/HCSFactsheet.html

- OSHA's Guide to the GHS Purple Book:
  http://www.osha.gov/dsg/hazcom/ghs.html

- Globally Harmonized System Of Classification And Labeling of Chemicals (GHS), 4th ed (Purple Book)

  http://www.unece.org/trans/danger/publi/ghs/ghs_rev04/04files_e.html

- Naval Safety Center GHS webpage:
  http://www.public.navy.mil/navsafecen/Pages/osh/GHS.aspx